

CLAIMS

1. A method for serving requests for Internet information files in an Internet caching system, comprising the steps of:

5 receiving, at a local Internet cache server, a user request from a user for an Internet information file;

in response to the received request, making a query for said information file, if said information file has
10 not been cached by said local server;

in response to a reply to said query, making a file request for said information file, wherein said file request is directed to a feeder means if said reply indicates that a central file server, storing cached
15 Internet information files, has said information file cached; and

querying, from said feeder means in response to said file request, said central file server for said information file,

20 in order to decrease the load on said central file server.

2. The method as claimed in claim 1, wherein said query is performed by said local cache server in accordance with a protocol used for communicating between
25 Internet cache servers.

3. The method as claimed in claim 2, wherein said protocol is the Internet Cache Protocol (ICP).

30

4. The method as claimed in claim 2, wherein said protocol is the Cache Digest.

5. The method as claimed in any one of claims 1 - 3, wherein said query is directed by said local cache server to said feeder means, which feeder means as a response returns said reply.

Sub 1 7
35

6. The method as claimed in 5, comprising the step of deriving, at said feeder means, a query number corresponding to said information file being concerned in said query.

7. The method as claimed in 6, wherein said querying step comprises using the derived query number when querying said central file server for said information file.

8. The method as claimed in claim 6, wherein said query provides an alphanumerical string associated with said information file, said string being used in said step of deriving said query number.

9. The method as claimed in claim 8, wherein said alphanumerical string is a Uniform Resource Locator (URL) and said query number is derived from said URL and at least part of a header information field of said query.

Sub A2
10. The method as claimed in any one of claims 1, 2 or 4, wherein said file request provides an alphanumerical string associated with said information file, said string being used by said feeder means for deriving a query number corresponding to said information file.

11. The method as claimed in claim 10, wherein said alphanumerical string is a Uniform Resource Locator (URL) and said query number is derived from said URL and at least part of a header information field of said file request.

Sub A3
12. The method as claimed in any one of the preceding claims, comprising the step of creating an indexed table having an entry for each Internet information file being cached at said central file server.

13. The method as claimed in claim 12, comprising the steps of:

performing a search in said indexed table for said
5 information file; and

indicating in said reply to said query whether or not said information file was found during said search.

Sub A4

10 14. The method as claimed in any one of the preceding claims, wherein said querying step comprises using the Structured Query Language (SQL) when querying said central file server for said information file.

15 15. The method as claimed in any one of the preceding claims, wherein said querying step comprises the steps of:

selecting, based upon an original host name or IP-address of said information file, a central file server out of a set of central file servers, each server of said
20 set being arranged to cache Internet information files with original host names or IP-addresses within a predefined range; and

querying the selected central file server for said information file.

25

16. The method as claimed in any one of claims 6 - 14, wherein said querying step comprises the steps of:

selecting, based upon said query number derived for said information file, a central file server out of a set
30 of central file servers, each server of said set being arranged to cache Internet information files with corresponding query numbers within a predefined range; and

querying the selected central file server for said information file.

35

17. The method as claimed in any one of claims 1 - 16, comprising the further steps of:

retrieving, at said local cache server, said information file from its origin server if said reply to said query indicates that said information file is not cached at said central file server;

5 caching said information file at said local cache server; and

 updating said central file server by requesting a copy of said information file from said local cache server and caching said copy in said central file server.

10

18. An arrangement in an Internet caching system, said system comprising at least one local cache server and at least one central file server, both of which servers stores cached Internet information files, which
15 arrangement, for decreasing the load on said central file server, includes a Feeder communicating with said local cache server and with said central file server, wherein said Feeder includes:

 first means for receiving a request for an Internet
20 information file from said local cache server;

 second means for deriving a query from an alpha-numerical string received from said local cache server; and

 third means for querying said central file server
25 for said Internet information file using said query derived by said second means.

19. The arrangement as claimed in claim 18, wherein said first means is arranged to operate in accordance
30 with a layer three Internet protocol.

Sub A5
20. The arrangement as claimed in claim 18 or 19, wherein said third means is arranged to use the Structured Query Language (SQL) when querying for said
35 Internet information file.

Sub A5

21. The arrangement as claimed in any one of claims 18 - 20, wherein said alphanumeric string is included in said request received from said local cache server.

5 22. The arrangement as claimed in claim 21, wherein said query is derived from said alphanumeric string and at least part of a header information field of said request received from said local cache server.

10 23. The arrangement as claimed in claim 22, wherein said query comprises a query number, the query number being derived by applying a hash algorithm to said string and to said part of said header information field.

Sub A6

15 24. The arrangement as claimed in any one of claims 18 - 20, wherein said Feeder includes:

fourth means for receiving a query for an Internet information file from said local cache server; and

20 fifth means for providing said local cache server with a reply to the received query.

25 25. The arrangement as claimed in claim 24, wherein said fourth means and said fifth means are arranged to operate in accordance with a protocol used for communicating between Internet cache servers.

26. The arrangement as claimed in claim 25, wherein said protocol is the Internet Cache Protocol (ICP).

Sub A7

30 27. The arrangement as claimed in any one of claims 24 - 26, wherein said alphanumeric string is included in said query received from said local cache server.

35 28. The arrangement as claimed in claim 27, wherein said query derived by said second means is derived from said alphanumeric string and at least part of a header

information field of said query received from said local cache server.

29. The arrangement as claimed in claim 28, wherein
5 said query comprises a query number, the query number being derived by applying a hash algorithm to said string and to said part of said header information field.

Sub A 8
10 30. The arrangement as claimed in one of claims 24 - 29, wherein said Feeder includes a table with a copy of the full index of all Internet information files cached at said central file server.

31. The arrangement as claimed in claim 30, wherein
15 said reply to said received query by said fifth means is based on the content of said table.

Sub A 9
20 32. The arrangement as claimed in one of claims 18 - 31, wherein said arrangement, for further decreasing the load on said central file server, includes an Updater communicating with said local cache server and with said central file server, wherein said Updater includes:
25 requesting means for requesting a copy of an Internet information file stored in a local cache server; and
storing means for storing the thereby received copy in a central file server.

33. The arrangement as claimed in claim 32, wherein
30 said requesting means are arranged to request a copy of an information file from its origin server, if a local cache server storing said information file resides behind a firewall.

Sub A 10
35 34. The arrangement as claimed in claim 32 or 33, wherein said Updater is arranged to communicate with said

Sub A16
Feeder for receiving an order to request said copy of said information file.

5 35. The arrangement as claimed in any one of claims 32 - 34, wherein said Updater includes a list of known uncachable information files, for which files a copy should not be requested.

10 36. The arrangement as claimed in any one of claims 16 - 35, wherein said Feeder is implemented by a lower end computer and said central file server is implemented by a higher end computer.

15 37. The arrangement as claimed in any one of claims 32 - 35, wherein said Updater is implemented by a lower end computer and said central file server is implemented by a higher end computer.

20 38. The arrangement as claimed in claim 37, wherein said Updater and at least one Feeder are implemented by a single lower end computer.

25 39. An Internet caching system, comprising:
a set of local Internet cache servers, wherein each local cache server is arranged to receive requests from users for Internet information files;

at least one central file server included in a central cache site and storing cached Internet information files; and

30 feeder means interconnecting said set of local cache servers with said central file server, said feeder means including at least one Feeder, which Feeder comprises means for communicating with at least one local cache server in accordance with a protocol used for communicating between Internet cache servers and means for
35 retrieving Internet information files from said central

file server using data base queries, thereby decreasing the load on said central file server.

40. The system as claimed in claim 39, wherein said
5 feeder means are included in said central cache site.

SubAll 7
41. The system as claimed in claims 39 or 40, where-
in each of said feeder means includes a plurality of
Feeders, each of said Feeder interconnecting a subset of
10 said set of local cache servers with said central file
server.

42. The Internet caching system as claimed in any
one of claims 39 - 41, wherein said central cache site is
15 arranged to serve a defined set of local cache servers,
which set in turn serves a linguistically and culturally
homogenous user community.

43. The Internet caching system as claimed in any
20 one of claims 39 - 42, wherein said protocol used is
either the Internet Cache Protocol or the Cache Digest.

44. The Internet caching system as claimed in any
one of claims 39 - 43, wherein each of said Feeder
25 includes a table with a copy of the full index of all
information files cached at said central cache site.

45. The Internet caching system as claimed in any
one of claims 39 - 44, wherein said central file server
30 includes cached Internet information files having
original host names within a predefined range.

46. The Internet caching system as claimed in any
one of claims 39 - 45, further comprising updater means,
35 interconnecting said central file server with at least
one local cache server of said set, for retrieving a copy
of an Internet information file from its origin server or

SW/All 7

from said at least one local cache server and for storing
said copy in said central file server.

20110916.094.00